SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

SAULT
COLLEGE

COURSE OUTLINE

COURSE TITLE: Terrestrial Ecosystem Surveys

CODE NO. :   NET 205   **SEMESTER:**   4

PROGRAM: Natural Environment Technician/Technologist

AUTHOR: Rob Routledge (modified after V. Walker, 2012)

DATE: Jan. 2014   **PREVIOUS OUTLINE DATED:**   Aug. 2012

APPROVED:

     "C. Kirkwood"   **Jan. '14**

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         DEAN   DATE

TOTAL CREDITS: 4

PREREQUISITE(S):   NONE

HOURS/WEEK: 4

I. COURSE DESCRIPTION:

This course will provide students with an understanding of the fundamental principles of sampling and survey design. The research process will be reinforced as students design and execute an ecological survey of their choice. Students will gain experience using a variety of data collection methods in the survey of plants and mammals (e.g., tree/forest measurements and inventory techniques and direct/indirect wildlife population assessment methods). Overall, students will demonstrate proficiency in the collection, management, analysis, and interpretation of field data and communication of results.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Upon successful completion of this course, the student will demonstrate the ability to:

1. **Describe the major components of an experimental (survey) design and demonstrate knowledge of the basic principles of sampling.**

    Potential Elements of the Performance:

    - Demonstrate an understanding of the research process
    - Demonstrate knowledge of various data collection methods available for sampling forest stands and wildlife populations (e.g., fixed vs. variable-radius quadrats, direct vs. indirect wildlife counting methods), when their use is most appropriate, and advantages and disadvantages of each
    - Distinguish between different sampling methods, e.g., experimental vs. observational sampling, probability (random) vs. nonprobability sampling
    - Demonstrate knowledge of sampling design options (how sampling units are placed within a population), advantages and disadvantages of each, and understand the importance of representative sampling
    - Understand and discuss factors that influence quadrat (sampling unit) size, shape, number (sample size), and arrangement for a given scenario

2. **Demonstrate appropriate sampling methodology and use of equipment to collect field data and analyse, interpret, and communicate results in a technical report.**

    Potential Elements of the Performance:

    - Demonstrate proficiency in basic navigation skills (e.g., compassing, pacing, chaining, navigating to and from locations)
    - Demonstrate proficiency in data handling and management

- Demonstrate ability to use data analysis tools available in Microsoft Excel for computing basic descriptive statistics and completing various statistical analyses to analyze field data
- Demonstrate ability to prepare graphs and tables using Microsoft Excel to summarize descriptive data and statistical analyses
- Demonstrate appropriate knowledge of, and ability to, conduct terrestrial field surveys using a variety of data collection methods

3. **Review a primary research article from a scholarly journal directed towards the effects of forest harvesting activities and/or natural disturbances (e.g., forest fires, insect infestations or blowdowns) on an eastern North American wildlife species or group of similar species.**

   Potential Elements of the Performance:

   - Demonstrate the ability to interpret a primary research article by:
     - defining the problem that the research proposes to answer
     - describing the process of data collection and explain how the methods employed are used to answer the "problem" under study
     - summarizing conclusions and future research directions suggested by the study

4. **Prepare a research project proposal related to wildlife or plant ecology and conduct a pilot study to evaluate the feasibility of the proposed research project.**

   Potential Elements of the Performance:

   - Demonstrate ability to develop a draft research project proposal that includes:
     - background information and key literature
     - justification, hypotheses, and predictions (proposed research question should be possible to answer within constraints of available time and equipment
     - description of the proposed study area
     - study design and methods (detailed description of proposed field and analytical methods)
     - literature cited
     - data sheet
     - time line of activities
   - Demonstrate ability to conduct a pilot study using the same methods proposed for the actual study and prepare a pilot study report which assesses the research proposal study design and methods based on results of the pilot study

III. **TOPICS:**

- basic statistics
- data handling and management
- navigation and orientation
- experimental design
- basic principles of sampling
- probability & nonprobability sampling
- data analysis
- technical report writing
- literature review
- research process
- sampling forest stands
- sampling wildlife populations

IV. **REQUIRED RESOURCES/ TEXTS/ MATERIALS:**

- USB flash drive
- All reference material will be placed on LMS (D2L)
- hard hat, reflective vest, snowshoes, compass

V. **EVALUATION PROCESS/GRADING SYSTEM:**

Tests	**20%**
Assignments	**80%**

- To be eligible to make up for a <u>missed test or quiz</u>, the instructor must be contacted via phone or email ASAP to discuss make-up options. Students not contacting the instructor prior to a missed class or <u>within a day</u> afterwards will get a zero except under extenuating circumstances; e.g., doctor's note.

- <u>Late assignments</u> will only be accepted within 24 hours past the due date and will be penalized 20% except under extenuating circumstances, e.g., doctor's note

- The instructor cannot guarantee responses to questions in the 24-hour period prior to assignment deadlines and tests via phone message or email.

The following semester grades will be assigned to students:

Grade	Definition	Grade Point Equivalent
A+	90 - 100%	4.00
A	80 - 89%	4.00
B	70 - 79%	3.00
C	60 - 69%	2.00
D	50 -59%	1.00
F (Fail)	49% and below	0.00

CR (Credit)	Credit for diploma requirements has been awarded.
S	Satisfactory achievement in field /clinical placement or non-graded subject area.
U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.
X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.
NR	Grade not reported to Registrar's office.

VI.   SPECIAL NOTES:

- Any student who in the judgement of the instructor behaves inappropriately in scheduled classes or copies the work of another student without the instructor's permission, will be subject to all the terms and conditions in the Student Code of Conduct hand book (see MySaultCollege portal) and may after, reviewing the situation with the instructor, be asked to leave the course with an F grade.

- Sault College is committed to student success. There is a direct correlation between academic performance and class attendance; therefore, for the benefit of all its constituents, all students are encouraged to attend all of their scheduled learning and evaluation sessions. This implies arriving on time and remaining for the duration of the scheduled session.

- The Instructor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.

- If you are a student with special needs (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your instructor and/or the Special Needs office.

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